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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/534,104

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EXAMINER

STULII, VERA

ART UNIT

PAPER NUMBER

1794

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12/08/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/534,104	Applicant(s) NISHIDA ET AL.	
	Examiner VERA STULII	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 June 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-6,8,12,13,15-17,20,22,25,26 and 34-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3-6,8,12,13,15-17,20,22,25,26 and 34-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 3-6, 8, 25-26 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jangaard et al in view of Applicants' admission of the prior art.

In regard to claim 8, Jangaard et al disclose a method for production of fermented beverage (beer) with no hydrogen sulfide that produces sulfur smell in beer, wherein L-methionine is added to the wort (page 46; Tables I, II; page 48 left column §1). In regard to claim 8, Jangaard et al disclose that L-methionine has an inhibiting effect on hydrogen sulfide production, and that the minimal effective concentration is 1 mM (Table II). Jangaard et al further disclose that the concentration of L-methionine normally found in wort is 0.26mM. Jangaard et al further disclose adding of L-methionine to the wort in order to avoid production of hydrogen sulfide, and therefore eliminate sulfur smell. Thus, Jangaard et al disclose preventing L-methionine depletion during fermentation by adding L-methionine to the wort and maintaining L-methionine concentration above the minimal effective concentration of 1 mM (Table II).

Jangaard et al is silent as to the production of beer by fermentation stopping process. As admitted by applicants, the fermentation stopping method was well known in the art as a method of manufacturing beer with low-alcohol content (Page 3 § 2 of Specification). Since Jangaard et al disclose production of beer in general (without specifying alcohol content), one of ordinary skill in the art would have been motivated to

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employ teachings of Jangaard et al in the production of low-alcoholic beer through fermentation stopping in order to avoid production of the sulfur smell. Further in this regard, it is noted that, as admitted by applicants, it is a common concern among fermented beverages to prevent off-flavors from developing during a yeast-based fermentation step” (Page 2 § 2 of Specification). Therefore, since Jangaard discloses elimination of sulfur smell during the fermentation step in production of beer in general, regardless the alcohol content, and Applicants admits the common problem of elimination of off-flavors and smells during fermentation of wort in when the method of stopping fermentation employed, one of ordinary skill in the art would have been motivated to employ teachings of Jangaard et al in the production of low-alcoholic beer by fermentation stopping process in order to avoid production of sulfur smell as taught by Jangaard et al. One of ordinary skill in the art would have been motivated to do so, since the problem of sulfur smell production and the solution of adding L-methionine to the wort was taught by Jangaard et al. One of ordinary skill in the art would have been further motivated to include additional step of addition of L-methionine to the wort in stopping fermentation process in order to avoid the common problem of sulfur smell development during fermentation step. One of ordinary skill in the art would have been further motivated to do so, since addition of L-methionine to the wort reduces production of hydrogen sulfide, and eliminated sulfur smell which significantly improves the taste, aroma, marketability and consumer satisfaction of the final beer beverage.

In regard to claims 3 and 4, Jangaard et al disclose production of beer, and thus discloses that wort is prepared from malt (barley malt is the main source of starch in the beer wort production).

In regard to claims 5 and 6, Jangaard et al disclose that L-methionine has inhibiting effect on hydrogen sulfide production, and that the minimal effective concentration is 1 mM (Table II). Jangaard et al further disclose that the concentration of L-methionine normally found in wort is 0.26mM. Jangaard et al further disclose adding of L-methionine to the wort in order to avoid production of hydrogen sulfide, and therefore eliminate sulfur smell. Thus, Jangaard et al disclose preventing L-methionine depletion during fermentation by adding L-methionine to the wort and maintaining L-methionine concentration above the minimal effective concentration of 1 mM (Table II).

In regard to claims 25-26, it is noted that *Saccharomyces cerevisiae* was well known to be used in the beer production. Therefore, one of ordinary skill in the art would have been motivated to use *Saccharomyces cerevisiae* as appropriate yeast strain.

In regard to claim 34, Jangaard et al disclose a method for production of fermented beverage (beer) with no hydrogen sulfide that produces sulfur smell in beer, wherein L-methionine is added to the wort (page 46; Tables I, II; page 48 left column §1).

Claims 12, 13, 15, 16, 25, 26 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakanishi et al (US 4,698,224) in view of Pugh et al. and Applicants' admission of the prior art.

In regard to claims 15 and 16, Nakanishi et al discloses a method for producing fermented beverages (beers) having reduced diacetyl smell by stopping second fermentation when free amino nitrogen level reaches predetermined level (free amino nitrogen level is being controlled) (Col. 1 lines 5-10; Col. 6 lines 5-15, Col. 12 lines 55-63, Example III-I, Table III-1). In regard to claim 15, Nakanishi et al discloses the free amino nitrogen level in wort during the fermentation is 14.5 mg/100 ml (Table III-1).

In regard to claims 15 and 16, Nakanishi et al is silent as to adjusting the L-valine concentration. Pugh et al discloses that valine can be used as a marker to optimize the wort free amino nitrogen" (page 188 left column §2). Pugh also discloses effect of free amino nitrogen concentration on diacetyl production. Since both Nakanishi et al and Pugh et al are concerned with diacetyl production, one of ordinary skill in the art would have been motivated to modify Nakanishi et al and to employ valine as a marker to optimize the wort free amino nitrogen as taught by Pugh et al (page 188 left column §2). One of ordinary skill in the art would have been motivated to so, since both Nakanishi et al and Pugh et al disclose reduction of diacetyl smell by controlling free amino nitrogen level in beer wort. Since Nakanishi et al discloses the free amino nitrogen level in wort during the fermentation is 14.5 mg/100 ml (Table III-1), the L-valine concentration would have been expected to be in the claimed range. Regarding L-valine and diacetyl (claim 35) concentrations, it is noted that although the references do not specifically disclose every possible quantification or characteristic of its product, such L-valine and diacetyl concentrations, these characteristics would have been expected to be in the claimed range absent any clear and convincing evidence and/or arguments to the contrary. The

combination of references disclose the same starting materials and methods as instantly (both broadly and more specifically) claimed, and thus one of ordinary skill in the art would recognize that the L-valine and diacetyl concentrations, among many other characteristics of the product obtained by referenced method, would have been an inherent result of the process disclosed therein. The Patent Office does not possess the facilities to make and test the referenced method and product obtain by such method, and as reasonable reading of the teachings of the references has been applied to establish the case of obviousness, the burden thus shifts to applicant to demonstrate otherwise.

In regard to claims 15 and 16, Nakanishi et al is silent as to the production of low-alcoholic beers and particular alcohol content of beer. As admitted by applicants, the fermentation stopping method was well known in the art as a method of manufacturing beer with low-alcohol content. Nakanishi et al disclose production of beer with reduced diacetyl smell, and as admitted by applicants, it is a common concern to prevent off-flavors from developing during a yeast-based fermentation step" (Page 2 § 2 of Specification). Therefore, since Nakanishi et al discloses elimination of diacetyl smell during the fermentation step in production of beer in general, regardless the alcohol content, and Applicants admits the common problem of elimination of off-flavors and smells during fermentation of wort in when the method of stopping fermentation employed, one of ordinary skill in the art would have been motivated to employ teachings of Nakanishi et al in the production of low-alcoholic beer by the fermentation stopping process in order to avoid production of diacetyl smell as taught by Nakanishi et

al. One of ordinary skill in the art would have been motivated to stop fermentation when the desired level of alcohol in beer has been achieved. One of ordinary skill in the art would have been motivated to do so, since production of low-alcoholic beers by fermentation stopping process was well known in the art as admitted by applicant (see also rejection of claim 1).

In regard to claim 12, Nakanishi et al does not disclose controlling free amino nitrogen level by adjusting parameters as recited in claim 12. In regard to claim 12, Pugh et al discloses free amino nitrogen level is derived from malt and is effected by malt/adjunct ratio, mashing schedule, barley variety and malting conditions (Page 185 left column §2). Further, Pugh discloses adjusting free amino nitrogen level by dilution (page 186 column 2 § 1). Since Nakanishi et al discloses adjusting free amino nitrogen level, and Pugh et al discloses free amino nitrogen level is effected by malt/adjunct ratio, mashing schedule, barley variety, malting conditions and dilution factor, one of ordinary skill in the art would have been motivated to modify Nakanishi et and to employ dilution factor as taught by Pugh in order to adjust free amino nitrogen level.

In regard to claim 13, Nakanishi et al discloses production of beer, and thus discloses that wort is prepared from malt (barley malt is the main source of starch in the beer wort production).

In regard to claims 25-26, it is noted that *Saccharomyces cerevisiae* was well known to be used in the beer production. Therefore, one of ordinary skill in the art would have been motivated to use *Saccharomyces cerevisiae* as appropriate yeast strain.

Claims 17, 20, 22, 25-26 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable Nakanishi et al (US 4,698,224) in view of Pugh et al., Applicants' admission of the prior art and further in view of Jangaard et al.

Nakanishi et al, Pugh et al., Jangaard et al and Applicants' admission of the prior art are taken as cited above.

As stated above, Nakanishi et al discloses a method for producing fermented beverages (beers) having reduced diacetyl smell by stopping second fermentation when free amino nitrogen level reaches predetermined level (free amino nitrogen level is being controlled) (Col. 1 lines 5-10; Col. 6 lines 5-15, Col. 12 lines 55-63, Example III-I, Table III-1). Pugh et al discloses that valine can be used as a marker to optimize the wort free amino nitrogen" (page 188 left column §2). Pugh also discloses effect of free amino nitrogen concentration on diacetyl production. As stated above, Jangaard et al disclose a method for production of fermented beverage (beer) with no hydrogen sulfide that produces sulfur smell in beer, wherein L-methionine is added to the wort (page 46; Tables I, II; page 48 left column §1).

Since, Nakanishi et al and Pugh et al are concerned with diacetyl production, and Jangaard et al disclose a method for production of fermented beverage (beer) with no hydrogen sulfide that produces sulfur smell in beer, one of ordinary skill in the art would have been motivated to modify combination of teachings of Nakanishi et al, Pugh et al. and Applicants' admission of the prior art and to add L-methionine to the wort to reduce the hydrogen sulfide that produces sulfur smell in beer as taught by Jangaard et al.

In regard to claim 20, Nakanishi et al does not disclose controlling free amino nitrogen level by adjusting parameters as recited in claim 20. In regard to claim 20, Pugh et al discloses free amino nitrogen level is derived from malt and is effected by malt/adjunct ratio, mashing schedule, barley variety and malting conditions (Page 185 left column §2). Further, Pugh discloses adjusting free amino nitrogen level by dilution (page 186 column 2 § 1). Since Nakanishi et al discloses adjusting free amino nitrogen level, and Pugh et al discloses free amino nitrogen level is effected by malt/adjunct ratio, mashing schedule, barley variety, malting conditions and dilution factor, one of ordinary skill in the art would have been motivated to modify Nakanishi and to employ dilution factor as taught by Pugh in order to adjust free amino nitrogen level.

In regard to claim 36, Jangaard et al disclose a method for production of fermented beverage (beer) with no hydrogen sulfide that produces sulfur smell in beer, wherein L-methionine is added to the wort (page 46; Tables I, II; page 48 left column §1). Further, regarding hydrogen sulfide and diacetyl concentrations (claim 36), it is noted that although the references do not specifically disclose every possible quantification or characteristic of its product, such hydrogen sulfide and diacetyl concentrations, these characteristics would have been expected to be in the claimed range absent any clear and convincing evidence and/or arguments to the contrary. The combination of references disclose the same starting materials and methods as instantly (both broadly and more specifically) claimed, and thus one of ordinary skill in the art would recognize that hydrogen sulfide and diacetyl concentrations, among many other characteristics of the product obtained by referenced method, would have been an

inherent result of the process disclosed therein. The Patent Office does not possess the facilities to make and test the referenced method and product obtain by such method, and as reasonable reading of the teachings of the references has been applied to establish the case of obviousness, the burden thus shifts to applicant to demonstrate otherwise.

In regard to claim 22, as stated above regarding the Applicants' admission of the prior art, , fermentation stopping method is a traditional fermentation method where the fermentation is stopped early when the desired content of alcohol is produced. Therefore one of ordinary skill in the art would have been motivated to stop fermentation when the desired level of alcohol in beer has been achieved. One of ordinary skill in the art would have been motivated to do so, since production of low-alcoholic beers by fermentation stopping process was well known in the art as admitted by applicant.

In regard to claims 25-26, it is noted that *Saccharomyces cerevisiae* was well known to be used in the beer production. Therefore, one of ordinary skill in the art would have been motivated to use *Saccharomyces cerevisiae* as appropriate yeast strain.

Response to Arguments

The rejection of claims 1-26 and 28-33 under 35 U.S.C. 112, second paragraph has been withdrawn due to the claims amendments.

The rejection of claims 9-10 under 35 U.S.C. 102(b) has been withdrawn due to the cancellation of claims.

Applicant's arguments filed 08/28/2009 have been fully considered but they are not persuasive.

Applicant's arguments with respect to claim 8 have been considered but are moot in view of the new ground(s) of rejection (page 8 of the Reply).

Applicant's arguments with respect to claims 11-13 have been considered but are moot in view of the new ground(s) of rejection (page 8 of the Reply).

Further in regard to Applicants' arguments regarding Nakanishi et al (page 9 of the Reply), in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., first or second fermentation, growth of yeast, stage of fermentation, carbon consumption, etc.) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Regarding L-valine and diacetyl concentrations arguments on page 10 of the Reply, it is noted that although the references do not specifically disclose every possible quantification or characteristic of its product, such L-valine and diacetyl concentrations, these characteristics would have been expected to be in the claimed range absent any clear and convincing evidence and/or arguments to the contrary. The combination of references disclose the same starting materials and methods as instantly (both broadly and more specifically) claimed, and thus one of ordinary skill in the art would recognize that the L-valine and diacetyl concentrations, among many other characteristics of the product obtained by referenced method, would have been an inherent result of the process disclosed therein. The Patent Office does not possess the facilities to make and test the referenced method and product obtain by such method, and as reasonable

reading of the teachings of the references has been applied to establish the case of obviousness, the burden thus shifts to applicant to demonstrate otherwise.

Applicant's arguments with respect to claims 15 and 16 have been considered but are moot in view of the new ground(s) of rejection (page 11 of the Reply).

Applicant's arguments with respect to claims 17, 23-26, 29 and 31-33 have been considered but are moot in view of the new ground(s) of rejection (page 11 of the Reply).

Claims 9-10 are rejected under 35 U.S.C. 103(a) has been withdrawn due to the cancellation of claims.

The rejection of claims 18 under 35 U.S.C. 103(a) has been withdrawn due to the cancellation of claim.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to VERA STULI whose telephone number is (571)272-3221. The examiner can normally be reached on 7:00 am-3:30 pm, Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Keith Hendricks can be reached on (571) 272-1401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Lien Tran/
Primary Examiner
Art Unit 1794

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Examiner, Art Unit 1794